The Ballarat Naturalist

December 2004

Lowan or Mallee Fowl

Invertebrates—the other 99%.

Speaker: Dr. Alan Yen, Vice President FNCV

Dr. Alan Yen is currently Head of Entomology at the Department of Primary Industries and was with the Museum of Victoria for twenty years.

Invertebrates are animals without backbones, and include worms, crustaceans, spiders and insects: the latter are dominant on land with large numbers of species and individuals. Of 300,000 species only 100,000 are named! Dr. Yen confined his talk to land invertebrates whilst acknowledging the large number of marine species.

Few invertebrates are as large as the mouse-sized New Zealand Weta, a cricket-like creature, or the Giant Gippsland earthworm which reaches a length of 1 metre and weighs 200-400 g. Most are much smaller. So why is so little known about them?

- Humans are often scared of them, or see them as pests; working with them is very different from dealing with birds or mammals.
- The vast majority are small.
- There is a large number of species.
- Different stages of their life history look very different e.g. egg—larva—pupa—adult.
- They are seen as spreaders of disease e.g. mosquitoes, cockroaches, yet relatively few are dangerous to us compared with the large number - 5-10 million—of species.

Insects are extremely useful, carrying out vital tasks:

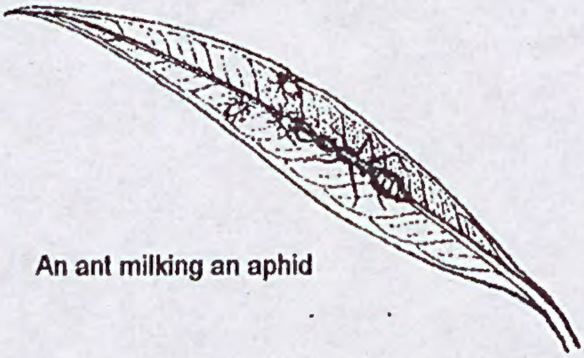
- They pollinate most flowers, which are often species specific.
- They aid in decomposition which enables re-cycling of nutrients to occur, clearing up waste matter. There are 400 species of cockroach in Australia.
- By harvesting seeds they aid in their dispersal—ants are particularly important here, 1500 species living in our country. Seeds often have food bodies

attached to them which are sought by the ants.

- By burrowing, invertebrates turn the soil over, enabling air and water to penetrate.
- By predating on other creatures they limit the growth of fast-breeding species.
- Parasitism—where the invertebrate uses its host without killing it, and parasitoides—those invertebrates which do kill their host—also keep numbers down.
- Scavenging provides the hygiene for the environment, cleaning up matter.

Invertebrates which are herbivores live on live plants and tend to be mostly insects. Often this is seen as a problem by humans but it is an essential part of nutrient recycling. The impact of feeding is often very obvious:

- Chewing, usually by moths and beetles.
- Skeletonising, often by moths.
- Leaf mining, a method used by larvae.
- Leaf galls, made by wasps.
- Sap suckers such as cicadas and psyllids. Ants often attend sap suckers, collecting honeydew and providing protection for the source of their food.


An ant milking an aphid

Vertebrate food such as birds and animals is also important. Different stages in an invertebrate's life history require different foods and therefore carry out different services in the ecology e.g. larvae may be wood borers while the adults are pollinators. Adults often have a brief life, emerging when plants produce flowers, and mating, whereas the larval stage can be very long—a borer has plenty of wood to support it!

Alan showed us a flow diagram illustrating the very complex food web involving invertebrates, based on plants. To the audience's amusement he showed us slides of a study where two trees were sprayed to enable an invertebrate count to be made, the bodies falling onto plastic sheets spread beneath each tree. A total of 8000 individuals, 547 species and 24 orders were found. The trees were surveyed in February and October, with only 120 species common to both months.

It was suggested that in Australia we have a unique invertebrate-plant relationship based on the dominance of eucalypts and acacias. Is the heavy insect damage we see an adaptation to aridity? Eucalypts planted overseas are rarely affected. Alan also noted that insect damage is a symptom of dieback, not a cause: there is already something wrong with the tree.

We came away with much food for thought about these vital but little regarded inhabitants of our planet.

Excursion: Orchids of Enfield, 7th November 2004.

Leaders: Pat and Bill Murphy

Fourteen members met for this aptly titled excursion led by Pat and Bill Murphy and were escorted to Enfield Forest where a carefully planned route took in Clarkes Road, Grassy Gully Road, Misery Creek Road, Bliss Road, Sleeps Road, Orchid Track and finished at Beacon Hill.

The first stop revealed Common Bird Orchid *Chiloglottis valida*, Dainty Bird Orchid *Chiloglottis trapeziformis* and Bronze Bird Orchid *Chiloglottis x pescottiana* the rare cross between the previous two orchids. These were in such profusion that it was hard to find a spot to stand and several members commented on how prolific bird orchids were this season. There were also Chocolate Lily *Arthropodium strictum* and the biggest goodenias Greg had ever seen.

Morning tea was at Enfield after which a specimen of Sweet Scented Wattle *Acacia suaveolens* was observed growing along the Ballarat Road. Entering the Enfield forest we stopped at a number of locations seeing Tiger Orchids *Diuris sulphurea*, Musky Caladenia *Caladenia gracilis*, Green Comb Spider Orchid *Caladenia tentaculata*, Bronze Caladenia *Caladenia iridescens*, Pink Fingers *Caladenia carneaa*, and Wallflower Orchid *Diuris orientis*. Six fire trucks on a training activity and good specimen of a Chinese (circular) mine shaft about 40 feet deep were also observed.

Lunch was taken at Surface Point where we were surprised to find a large group of picnickers from the Melbourne Women's Walking Club also enjoying the forest, perhaps a little more vigorously than we were. They were proud of the fact that their club had been formed in 1922 because men would not let them join. They swelled our ranks somewhat as they shared our enjoyment of being shepherded to the next flower on Pat's list, the Slender Ruddyhood Orchid *Pterostylis aciculiformis*. The women appreciated being shown these uncommon orchids and by the time we all left the plants had been thoroughly photographed.

After lunch we stopped at a couple of places to seek some more orchids. As usual, Pat and Bill had been very thorough in their preparation so that we could be efficiently led to the orchids that were featured on the excursion. Pat and Bill had been out previously noting geographical features and placing a number of obscure and not so obscure markers, so finding a range of orchids including relatively rare ones seemed quite easy.

The last stop for the day was at Beacon Hill which looked very attractive covered with flowers of many colours, mostly white (teatree) and yellow. Had the day been sunny we would have enjoyed the many sun orchids. A small boronia was appreciated. This was another place we had to watch our feet, so thick was the profusion of

flowers. Other orchids included: Purplish Beard Orchid *Calochilus robertsonii*, Hare Orchid *Leptoceras menziesii* – leaves, Salmon Sun Orchid *Thelymitra rubra*, Dotted Sun Orchid *Thelymitra ixioides*, Slender Sun Orchid *Thelymitra pauciflora,* Twisted Sun Orchid *Thelymitra flexuosa*, Waxlip *Glossodia major*, Large Tongue Orchid *Cryptostylis subulata* and Short-lip Leek Orchid *Prasophyllum brevilabre*

Orchids were the focus of today's plant search but of course we saw many others. Some members were introduced to the Enfield Grevillea *Grevillea Bedggoodiana,* named in honour of the late Stella Bedggood, a former member of our club. These plants were flowering well. Also seen were Blue Bottle Daisy *Lagenophera stigitata,* Blue Bells *Wahlenbergia stricta,* Black-anther Flax Lily *Dianella revoluta*)– about to flower, *Scorpoides*, very good specimen of the Blue Love Creeper *Comesperma volubile*, Milkmaids *Burchardia umbellata,* Creamy Candles *Stackhousia monogyna,* Rice Flower *Pimelia sp.,* Dwarf Bush Pea *Pultenaea humilis,* and Golden Bush Pea *Pultenaea gunnii*

Comments were made about how inactive birds were on this excursion. Perhaps they were sheltering somewhere warm.

Claire and Peter Dalman

Mid-month Excursion: Masterfoods Wetland

The Masterfoods factory, better known to some of us as the Mars factory, is located on Ballarat's ring road. To deal with waste water from the processing of its chocolate products, the company has developed a wetland to provide for natural cleansing of those wastes.

Since its inception the company has reduced its water requirements from around 40 million litres to 15 million litres of water per month by looking for opportunities to recycle, or to find an alternative where water was used in non-food applications. Begun in 1998, the facility was opened by then Premier Jeff Kennet in 1999. It consists of solids removal equipment, and a series of 6 lagoons (or cells) which treat the water using biofilm i.e. algae and bacteria living on the aquatic plants use the nutrients in the water as food. The aim is to reduce b.o.d. (biological oxygen demand) from between 140 and 280 units to 40-60, at which level it can be safely used in the sprinkler system maintaining the surrounding grassed areas.

The lagoons were initially planted on the advice of Latrobe University but the vegetation chosen was found to be unsuitable for the Ballarat area, and gradually died. Expertise was sought from Deakin University (Warrnambool) and graduate students have undertaken planting projects in the various cells as part of their studies. The three main cells are 200m long and between 10 and 30m wide, with alternating shallow and deep zones from half to one and a half metres deep. These have been planted with zones of Phragmites reeds and species of Clubrush, Twigrush, Spikerush, Water Ribbons and River Clubsedge. The flow between cells is regulated and includes fluctuating water levels to mimic nature, allowing aeration to occur and the establishment of seedlings.

Information plaques around the area display diagrams of the plantings, photos of the aquatic plants and the rational behind the various projects. Another research project being trialled by a member of the Masterfoods staff consists of tanks of water containing lengths of man-made fibres on which biofilm is encouraged to grow; it is hoped this could speed up the treatment process in the deeper lagoons—but it would be expensive and doesn't exactly fit the sustainability image!

From 400,000 litres of waste water per day the company now has reduced its output to 280,000. The quality of the water table beneath the wetland is tested four times a year in 3 bores, and the results have been consistent throughout and in line with EPA requirements. Cell 6 contains the purest water and even has a fountain playing—unless it is too windy, in which case it automatically shuts off!

A measure of the success of the project was heard by the final lagoon—two Pobblebonk frogs were calling. Reed Warblers and a Little Grass Bird called in the Phragmites reeds while Welcome Swallows jinked overhead. Two Black-fronted Dotterels were seen on the muddy surrounds of a lagoon being dried out preparatory to replanting. Our guide had noticed a family of Black Duck, and the previous year three Black Swans had used the facility. Peewit, Raven, Starling were all seen, with Sacred Ibis flying overhead. The perimeter of the wetland had been planted with natives including grevilleas, bottlebrushes and eucalypts, so there is a fair potential to increase the species count as these plants mature. Groups of boulders will provide shady nooks for skinks and lizards.

Thanks must go to Bruno Bomitali, Environmental and Site Services Manager, for his time and the wealth of information he provided, and to John Gregurke for arranging the outing with him. The wetland is not open to the public, and appointments must be made to inspect it.

Carol Hall.

The Swan and its Bottles—Conclusion?

In the September newsletter we described the nesting of a male swan D33 which was incubating two glass bottles—the whole situation was a mystery. It was first noted on August 10th, and the last sighting of the swan on the nest was at the end of October. On November 23rd Patrick Guay, John Gregurke and Carol Hall saw the swan at Windmill Drive whilst they were conducting a census, so presumably it has now abandoned the nest. We reckon the swan stayed at the nest for approximately 80 days; 40 days is the normal incubating period. No female was ever linked to D33, but with no monitoring done in the interim we cannot be sure of other factors in this intriguing scenario.

Carol Hall.

South East Australian Naturalists' Association

Spring Camp 29 October-2 November

The Little Desert National Park and surrounding reserves attracted a very good attendance of members representing some 14 clubs of the Association, including 10 FNC Ballarat members. Little Desert Lodge proved to be an ideal venue from which to operate. SEANA Committee members had planned the event and offered an excellent programme. This embraced many varied localities for excursions, thus providing much of interest to participants from other regions.

The ongoing dry conditions had obviously affected the spring season but there were many satisfying observations to be made. Excursion destinations could be selected from:- Little Desert National Park—including Kiata Wildflower Reserve and Camping Ground area walks; Tooan State Park; Nhill area; southern section of Big Desert at Herman's Hill Nature Trail; NW shore of Lake Hindmarsh (dry); Glenlee Reserve; Hamlyn Reserve; Mt. Arapiles; and in the Dimboola area, Horseshoe Bend and Snape Reserve (Trust for Nature property).

Nhill naturalist Clive Crouch was very generous with his time as both a leader and speaker, introducing members to a number of reserves in the district. One of particular interest is the recently established sanctuary for the endangered Golden Sun Moth and Pale Sun Moth in a remnant wallaby grass area on the NE fringe of the Nhill township.

Neil Marriott of Trust for Nature introduced visitors to the Snape Reserve, a former farm property of varied habitats SW of Dimboola. This has only been under management by the Trust for four years and is developing into an excellent fauna and flora reserve.

At the Little Desert Lodge members were able to study at close quarters the lovely Lowan birds in the aviary designed for the captive breeding programme. The Nhill treatment plant provided observations of waterfowl and waders including some recently arrived migratory Sharp-tailed Sandpipers.

The General Meeting of SEANA resolved that if the ANN get-together (January 2006) goes ahead no SEANA camp will be held in March 2006 and that the AGM will be conducted during the spring gathering of that year. Guidelines for the allocation of funds as grants or loans to affiliated groups for approved projects were discussed and adopted. The website of the Association may be visited on SEANA-naturalists (through Google). Ern Perkins (Castlemaine FNC) is the webmaster.

This Camp provided participants with a comprehensive experience of this admirable region and those present appreciated the planning and management undertaken by the SEANA Committee members.

Greg Binns.

November Meeting Points

29 members and visitors were welcomed. Appreciation was expressed for those who maintained the activities of the Club whilst a number of the executive were in Western Australia attending the Australian Naturalists Network function.

Ballarat University: Student Environment Project Presentations - Thursday 4 November 2004. Fran Hanrahan and Greg Binns attended these presentations. They tabled a booklet summarising the projects and outlined the scope and nature.

SEANA Little Desert Campout. John Gregurke reported that 10 Club members attended out of a total participation of 90 with 20 coming from Sale, the most distant club. He reminded members of the Upper Goulburn FNC SEANA Campout - Friday 11 March to Monday 14 March 2005 and advised early registration as the time is a long weekend. John advised that at the SEANA meeting a grant of $500 was approved to the LaTrobe Valley club to support a Jean Galbraith scholarship fund for environment students. He also advised that Portland Club intends to publish a 'bird book'. Attention was drawn to the autumn SEANA campout which will be held at Mallacoota from October 14th to 18th 2005. Ken Hammond reported on the excursion he led and Greg Binns commented on work being done to sustain the Golden Sun Moth. Other members commented on the success of the function and congratulated and thanked John Gregurke for his organisational work as secretary of SEANA.

Show and Tell

- Tony Johns: Article in paper on valley in NSW having 50 - 60 pairs of Regent Honeyeaters nesting.
- Frank Harrop: Feather from Common Bronzewing. Commented that in 28 years at Mt Helen he had recorded a total of 70 species of birds but was now seeing only about 15 different species in a year.

Field Reports

- John Mildren: Thousands of Bird Orchids in Fiskin Rd Mt Helen.
- Del McDonnell: Echidna seen in Gardner Street Creswick.
- Greg Binns: Fon Ryan reported 40 Glossy Ibis in Learmonth district.
- Carol Hall and Elizabeth Fitzpatrick: Reported Cygnets at Lake Wendouree.
- Les Hanrahan: On 24th October, Bird Observers excursion observed 4 Glossy Ibis on Lake Wendouree.
- Helen Burgess: Magpies nesting at her home in Brown Hill with offspring from previous year remaining.
- Maureen Christie: White duck (domestic escapee) with clutch of young noted on Lake Wendouree.

Calendar

December

Fri. 3	Carol Hall: *Natural History of America's Pacific Northwest.* **NB** Change of speaker.	
Sun. 5	Excursion to *Mooramong & Chepstowe* with Greg Binns.	
Sun. 12	Christmas Breakup at Lyndsay and Lorraine's, BYO meat, & salads or sweets to share; BYO drinks, chairs.	12 noon.

2005

January

Tues. 25	Committee Meeting @ Fran's,

February

Fri. 4	*The Western Australian Experience*—Club members Dalman/Hall/Gregurke.
Sun. 6	Excursion to the *Bellarine Peninsula* led by club members.

Supper Duty: **December:** Pat and Bill Murphy
February: Del McDonnell

Committee

President .... Mr. Peter Dalman
Vice-President .... Mrs. Carol Hall
Secretary .... Mr. John Gregurke
Treasurer .... Mr. Bob Curtain

Mr. Greg Binns …………..
Miss Helen Burgess………..
Miss Maureen Christie…....
Mrs. Claire Dalman………..
Mrs. Carol Hall (Editor)…..
Miss Fran Hanrahan………
Mr. Les Hanrahan…………

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Meetings are held at the Ballarat Horticultural Centre, cnr. Gregory & Gillies Sts (VicRoads 254 F8) on the first Friday of the month at 7.30pm.

Excursions: Depart from Ballarat Market Place (formerly Creswick Plaza) Creswick Rd., Ballarat (VicRoads 255 M10) at 9.30 am unless otherwise specified.

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